



SEQUENCE LISTING

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Baker, Brian
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<120> Methods for Predicting Functional and
Structural Properties of Polypeptides Using Sequence Models

<130> P-TB 5072

<140> US 10/040,895

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<160> 17

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 155

<212> PRT

<213> Homo sapiens

<400> 1

Cys	Leu	Ile	Gly	Cys	Gly	Phe	Ser	Thr	Gly	Tyr	Gly	Ala	Ala	Val	Lys
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Thr	Gly	Lys	Val	Lys	Pro	Gly	Ser	Thr	Cys	Val	Val	Phe	Gly	Leu	Gly
			20					25					30		
Gly	Val	Gly	Leu	Ser	Val	Ile	Met	Gly	Cys	Lys	Ser	Ala	Gly	Ala	Ser
		35					40					45			
Arg	Ile	Ile	Gly	Ile	Asp	Leu	Asn	Lys	Asp	Lys	Phe	Glu	Lys	Ala	Met
	50					55					60				
Ala	Val	Gly	Ala	Thr	Glu	Cys	Ile	Ser	Pro	Lys	Asp	Ser	Thr	Lys	Pro
65					70					75				80	
Ile	Ser	Glu	Val	Leu	Ser	Glu	Met	Thr	Gly	Asn	Asn	Val	Gly	Tyr	Thr
			85						90					95	
Phe	Glu	Val	Ile	Gly	His	Leu	Glu	Thr	Met	Ile	Asp	Ala	Leu	Ala	Ser
			100					105					110		
Cys	His	Met	Asn	Tyr	Gly	Thr	Ser	Val	Val	Val	Gly	Val	Pro	Pro	Ser
		115					120					125			
Ala	Lys	Met	Leu	Thr	Tyr	Asp	Pro	Met	Leu	Leu	Phe	Thr	Gly	Arg	Thr
	130					135						140			
Trp	Lys	Gly	Cys	Val	Phe	Gly	Gly	Leu	Lys	Ser					
145					150					155					

<210> 2

<211> 152

<212> PRT

<213> Equus caballus

<400> 2

Gly	Cys	Gly	Phe	Ser	Thr	Gly	Tyr	Gly	Ser	Ala	Val	Lys	Val	Ala	Lys
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Val	Thr	Gln	Gly	Ser	Thr	Cys	Ala	Val	Phe	Gly	Leu	Gly	Gly	Val	Gly
		20						25					30		
Leu	Ser	Val	Ile	Met	Gly	Cys	Lys	Ala	Ala	Gly	Ala	Ala	Arg	Ile	Ile
		35					40					45			
Gly	Val	Asp	Ile	Asn	Lys	Asp	Lys	Phe	Ala	Lys	Ala	Lys	Glu	Val	Gly
	50				55						60				
Ala	Thr	Glu	Cys	Val	Asn	Pro	Gln	Asp	Tyr	Lys	Lys	Pro	Ile	Gln	Glu
65					70					75					80
Val	Leu	Thr	Glu	Met	Ser	Asn	Gly	Gly	Val	Asp	Phe	Ser	Phe	Glu	Val
				85					90					95	
Ile	Gly	Arg	Leu	Asp	Thr	Met	Val	Thr	Ala	Leu	Ser	Cys	Cys	Gln	Glu
			100					105					110		
Ala	Tyr	Gly	Val	Ser	Val	Ile	Val	Gly	Val	Pro	Pro	Asp	Ser	Gln	Asn
		115					120					125			
Leu	Ser	Met	Asn	Pro	Met	Leu	Leu	Leu	Ser	Gly	Arg	Thr	Trp	Lys	Gly
	130					135					140				
Ala	Ile	Phe	Gly	Gly	Phe	Lys	Ser								
145						150									

<210> 3

<211> 175

<212> PRT

<213> Thermoanaerobium Brockii

<400> 3

Val	Met	Ile	Pro	Asp	Met	Met	Thr	Thr	Gly	Phe	His	Gly	Ala	Glu	Leu
1				5					10					15	
Ala	Asp	Ile	Glu	Leu	Gly	Ala	Thr	Val	Ala	Val	Leu	Gly	Ile	Gly	Pro
			20					25					30		
Val	Gly	Leu	Met	Ala	Val	Ala	Gly	Ala	Lys	Leu	Arg	Gly	Ala	Gly	Arg
		35					40					45			
Ile	Ile	Ala	Val	Gly	Ser	Arg	Pro	Val	Cys	Val	Asp	Ala	Ala	Lys	Tyr
	50					55					60				
Tyr	Gly	Ala	Thr	Asp	Ile	Val	Asn	Tyr	Lys	Asp	Gly	Pro	Ile	Glu	Ser
65					70					75					80
Gln	Ile	Met	Asn	Leu	Thr	Glu	Gly	Lys	Gly	Val	Asp	Ala	Ala	Ile	Ile
			85						90				95		
Ala	Gly	Gly	Asn	Ala	Asp	Ile	Met	Ala	Thr	Ala	Val	Lys	Ile	Val	Lys
			100					105					110		
Pro	Gly	Gly	Thr	Ile	Ala	Asn	Val	Asn	Tyr	Phe	Gly	Glu	Gly	Glu	Val
		115				120						125			
Leu	Pro	Val	Pro	Arg	Leu	Glu	Trp	Gly	Cys	Gly	Met	Ala	His	Lys	Thr
	130					135					140				
Ile	Lys	Gly	Gly	Leu	Cys	Pro	Gly	Gly	Arg	Leu	Arg	Met	Glu	Arg	Leu
145					150					155					160
Ile	Asp	Leu	Val	Phe	Tyr	Lys	Arg	Val	Asp	Pro	Ser	Lys	Leu	Val	

165

170

175

<210> 4
<211> 141
<212> PRT
<213> Lactobacillus confusus

<400> 4
Ala Arg Lys Ile Gly Ile Ile Gly Leu Gly Asn Val Gly Ala Ala Val
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Ala His Gly Leu Ile Ala Gln Gly Val Ala Asp Asp Tyr Val Phe Ile
20 25 30
Asp Ala Asn Glu Ala Lys Val Lys Ala Asp Gln Ile Asp Phe Gln Asp
35 40 45
Ala Met Ala Asn Leu Glu Ala His Gly Asn Ile Val Ile Asn Asp Trp
50 55 60
Ala Ala Leu Ala Asp Ala Asp Val Val Ile Ser Thr Leu Gly Asn Ile
65 70 75 80
Lys Leu Gln Gln Phe Ala Glu Leu Lys Phe Thr Ser Ser Met Val Gln
85 90 95
Ser Val Gly Thr Asn Leu Lys Glu Ser Gly Phe His Gly Val Leu Val
100 105 110
Val Ile Ser Asn Pro Val Asp Val Ile Thr Ala Leu Phe Gln His Val
115 120 125
Thr Gly Phe Pro Ala His Lys Val Ile Gly Thr Gly Thr
130 135 140

<210> 5
<211> 147
<212> PRT
<213> B. Stearothermophilus

<400> 5
Met Lys Asn Asn Gly Gly Ala Arg Val Val Val Ile Gly Ala Gly Phe
1 5 10 15
Val Gly Ala Ser Tyr Val Phe Ala Leu Met Asn Gln Gly Ile Ala Asp
20 25 30
Glu Ile Val Leu Ile Asp Ala Asn Glu Ser Lys Ala Ile Gly Asp Ala
35 40 45
Met Asp Phe Asn His Gly Lys Val Phe Ala Pro Lys Pro Val Asp Ile
50 55 60
Trp His Gly Asp Tyr Asp Asp Cys Arg Asp Ala Asp Leu Val Val Ile
65 70 75 80
Cys Ala Gly Ala Asn Gln Lys Pro Gly Glu Thr Arg Leu Asp Leu Val
85 90 95
Asp Lys Asn Ile Ala Ile Phe Arg Ser Ile Val Glu Ser Val Met Ala
100 105 110
Ser Gly Phe Gln Gly Leu Phe Leu Val Ala Thr Asn Pro Val Asp Ile
115 120 125
Leu Thr Tyr Ala Thr Trp Lys Phe Ser Gly Leu Pro His Glu Arg Val
130 135 140

Ile Gly Ser
145

<210> 6
<211> 312
<212> PRT
<213> E. Coli

<400> 6
Met Lys Val Ala Val Leu Gly Ala Ala Gly Gly Ile Gly Gln Ala Leu
1 5 10 15
Ala Leu Leu Leu Lys Thr Gln Leu Pro Ser Gly Ser Glu Leu Ser Leu
20 25 30
Tyr Asp Ile Ala Pro Val Thr Pro Gly Val Ala Val Asp Leu Ser His
35 40 45
Ile Pro Thr Ala Val Lys Ile Lys Gly Phe Ser Gly Glu Asp Ala Thr
50 55 60
Pro Ala Leu Glu Gly Ala Asp Val Val Leu Ile Ser Ala Gly Val Arg
65 70 75 80
Arg Lys Pro Gly Met Asp Arg Ser Asp Leu Phe Asn Val Asn Ala Gly
85 90 95
Ile Val Lys Asn Leu Val Gln Gln Val Ala Lys Thr Cys Pro Lys Ala
100 105 110
Cys Ile Gly Ile Ile Thr Asn Pro Val Asn Thr Thr Val Ala Ile Ala
115 120 125
Ala Glu Val Leu Lys Lys Ala Gly Val Tyr Asp Lys Asn Lys Leu Phe
130 135 140
Gly Val Thr Thr Leu Asp Ile Ile Arg Ser Asn Thr Phe Val Ala Glu
145 150 155 160
Leu Lys Gly Lys Gln Pro Gly Glu Val Glu Val Pro Val Ile Gly Gly
165 170 175
His Ser Gly Val Thr Ile Leu Pro Leu Leu Ser Gln Val Pro Gly Val
180 185 190
Ser Phe Thr Glu Gln Glu Val Ala Asp Leu Thr Lys Arg Ile Gln Asn
195 200 205
Ala Gly Thr Glu Val Val Glu Ala Lys Ala Gly Gly Gly Ser Ala Thr
210 215 220
Leu Ser Met Gly Gln Ala Ala Ala Arg Phe Gly Leu Ser Leu Val Arg
225 230 235 240
Ala Leu Gln Gly Glu Gln Gly Val Val Glu Cys Ala Tyr Val Glu Gly
245 250 255
Asp Gly Gln Tyr Ala Arg Phe Phe Ser Gln Pro Leu Leu Leu Gly Lys
260 265 270
Asn Gly Val Glu Glu Arg Lys Ser Ile Gly Thr Leu Ser Ala Phe Glu
275 280 285
Gln Asn Ala Leu Glu Gly Met Leu Asp Thr Leu Lys Lys Asp Ile Ala
290 295 300
Leu Gly Gln Glu Phe Val Asn Lys
305 310

<210> 7

<211> 163
 <212> PRT
 <213> Sus scrofa

<400> 7

Ala	Thr	Leu	Lys	Asp	Gln	Leu	Ile	His	Asn	Leu	Leu	Lys	Glu	Glu	His
1			5						10				15		
Val	Pro	His	Asn	Lys	Ile	Thr	Val	Val	Gly	Val	Gly	Ala	Val	Gly	Met
			20					25					30		
Ala	Cys	Ala	Ile	Ser	Ile	Leu	Met	Lys	Glu	Leu	Ala	Asp	Glu	Ile	Ala
		35					40					45			
Leu	Val	Asp	Val	Met	Glu	Asp	Lys	Leu	Lys	Gly	Glu	Met	Met	Asp	Leu
		50				55					60				
Gln	His	Gly	Ser	Leu	Phe	Leu	Arg	Thr	Pro	Lys	Ile	Val	Ser	Gly	Lys
65					70					75					80
Asp	Tyr	Asn	Val	Thr	Ala	Asn	Ser	Arg	Leu	Val	Val	Ile	Thr	Ala	Gly
				85					90					95	
Ala	Arg	Gln	Gln	Gly	Glu	Ser	Arg	Leu	Asn	Leu	Val	Gln	Arg	Asn	
			100					105					110		
Val	Asn	Ile	Phe	Lys	Phe	Ile	Ile	Pro	Asn	Ile	Val	Lys	Tyr	Ser	Pro
			115				120					125			
Asn	Cys	Lys	Leu	Leu	Val	Val	Ser	Asn	Pro	Val	Asp	Ile	Leu	Thr	Tyr
		130				135					140				
Val	Ala	Trp	Lys	Ile	Ser	Gly	Phe	Pro	Lys	Asn	Arg	Val	Ile	Gly	Ser
145					150					155					160
Gly	Cys	Asn													

<210> 8
 <211> 333
 <212> PRT
 <213> Sus scrofa

<400> 8

Ser	Glu	Pro	Ile	Arg	Val	Leu	Val	Thr	Gly	Ala	Ala	Gly	Gln	Ile	Ala
1				5					10				15		
Tyr	Ser	Leu	Leu	Tyr	Ser	Ile	Gly	Asn	Gly	Ser	Val	Phe	Gly	Lys	Asp
			20					25					30		
Gln	Pro	Ile	Ile	Leu	Val	Leu	Leu	Asp	Ile	Thr	Pro	Met	Met	Gly	Val
		35					40					45			
Leu	Asp	Gly	Val	Leu	Met	Glu	Leu	Gln	Asp	Cys	Ala	Leu	Pro	Leu	Leu
		50				55					60				
Lys	Asp	Val	Ile	Ala	Thr	Asp	Lys	Glu	Glu	Ile	Ala	Phe	Lys	Asp	Leu
65					70					75					80
Asp	Val	Ala	Ile	Leu	Val	Gly	Ser	Met	Pro	Arg	Arg	Asp	Gly	Met	Glu
				85					90					95	
Arg	Lys	Asp	Leu	Leu	Lys	Ala	Asn	Val	Lys	Ile	Phe	Lys	Cys	Gln	Gly
			100					105					110		
Ala	Ala	Leu	Asp	Lys	Tyr	Ala	Lys	Lys	Ser	Val	Lys	Val	Ile	Val	Val
		115					120					125			
Gly	Asn	Pro	Ala	Asn	Thr	Asn	Cys	Leu	Thr	Ala	Ser	Lys	Ser	Ala	Pro
		130					135					140			

Ser	Ile	Pro	Lys	Glu	Asn	Phe	Ser	Cys	Leu	Thr	Arg	Leu	Asp	His	Asn
145					150					155					160
Arg	Ala	Lys	Ala	Gln	Ile	Ala	Leu	Lys	Leu	Gly	Val	Thr	Ser	Asp	Asp
				165					170					175	
Val	Lys	Asn	Val	Ile	Ile	Trp	Gly	Asn	His	Ser	Ser	Thr	Gln	Tyr	Pro
		180					185						190		
Asp	Val	Asn	His	Ala	Lys	Val	Lys	Leu	Gln	Ala	Lys	Glu	Val	Gly	Val
	195					200						205			
Tyr	Glu	Ala	Val	Lys	Asp	Asp	Ser	Trp	Leu	Lys	Gly	Glu	Phe	Ile	Thr
	210					215					220				
Thr	Val	Gln	Gln	Arg	Gly	Ala	Ala	Val	Ile	Lys	Ala	Arg	Lys	Leu	Ser
	225				230					235					240
Ser	Ala	Met	Ser	Ala	Ala	Lys	Ala	Ile	Cys	Asp	His	Val	Arg	Asp	Ile
				245					250					255	
Trp	Phe	Gly	Thr	Pro	Glu	Gly	Glu	Phe	Val	Ser	Met	Gly	Ile	Ile	Ser
		260					265						270		
Asp	Gly	Asn	Ser	Tyr	Gly	Val	Pro	Asp	Asp	Leu	Leu	Tyr	Ser	Phe	Pro
	275						280					285			
Val	Thr	Ile	Lys	Asp	Lys	Thr	Trp	Lys	Ile	Val	Glu	Gly	Leu	Pro	Ile
	290					295				300					
Asn	Asp	Phe	Ser	Arg	Glu	Lys	Met	Asp	Leu	Thr	Ala	Lys	Glu	Leu	Ala
305					310				315						320
Glu	Glu	Lys	Glu	Thr	Ala	Phe	Glu	Phe	Leu	Ser	Ser	Ala			
				325					330						

<210> 9

<211> 159

<212> PRT

<213> Thermus Flaviv

<400> 9

Met	Lys	Ala	Pro	Val	Arg	Val	Ala	Val	Thr	Gly	Ala	Ala	Gly	Gln	Ile
1				5					10					15	
Gly	Tyr	Ser	Leu	Leu	Phe	Arg	Ile	Ala	Ala	Gly	Glu	Met	Leu	Gly	Lys
			20				25						30		
Asp	Gln	Pro	Val	Ile	Leu	Gln	Leu	Leu	Glu	Ile	Pro	Gln	Ala	Met	Lys
		35				40						45			
Ala	Leu	Glu	Gly	Val	Val	Met	Glu	Leu	Glu	Asp	Cys	Ala	Phe	Pro	Leu
	50					55				60					
Leu	Ala	Gly	Leu	Glu	Ala	Thr	Asp	Asp	Pro	Asp	Val	Ala	Phe	Lys	Asp
65					70				75						80
Ala	Asp	Tyr	Ala	Leu	Leu	Val	Gly	Ala	Ala	Pro	Arg	Lys	Ala	Gly	Met
			85					90						95	
Glu	Arg	Arg	Asp	Leu	Leu	Gln	Val	Asn	Gly	Lys	Ile	Phe	Thr	Glu	Gln
			100					105					110		
Gly	Arg	Ala	Leu	Ala	Glu	Val	Ala	Lys	Lys	Asp	Val	Lys	Val	Leu	Val
		115					120					125			
Val	Gly	Asn	Pro	Ala	Asn	Thr	Asn	Ala	Leu	Ile	Ala	Tyr	Lys	Asn	Ala
	130					135					140				
Pro	Gly	Leu	Asn	Pro	Arg	Asn	Phe	Thr	Ala	Met	Thr	Arg	Leu	Asp	
145					150					155					

<210> 10
 <211> 200
 <212> PRT
 <213> E. coli

<400> 10
 Pro Phe Ser Asn Thr Arg Ser Val Ala Glu Leu Val Ile Gly Glu Leu
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 Leu Leu Leu Leu Arg Gly Val Pro Glu Ala Asn Ala Lys Ala His Arg
 20 25 30
 Gly Val Trp Asn Lys Leu Ala Ala Gly Ser Phe Glu Ala Arg Gly Lys
 35 40 45
 Lys Leu Gly Ile Ile Gly Tyr Gly His Ile Gly Thr Gln Leu Gly Ile
 50 55 60
 Leu Ala Glu Ser Leu Gly Met Tyr Val Tyr Phe Tyr Asp Ile Glu Asn
 65 70 75 80
 Lys Leu Pro Leu Gly Asn Ala Thr Gln Val Gln His Leu Ser Asp Leu
 85 90 95
 Leu Asn Met Ser Asp Val Val Ser Leu His Val Pro Glu Asn Pro Ser
 100 105 110
 Thr Lys Asn Met Met Gly Ala Lys Glu Ile Ser Leu Met Lys Pro Gly
 115 120 125
 Ser Leu Leu Ile Asn Ala Ser Arg Gly Thr Val Val Asp Ile Pro Ala
 130 135 140
 Leu Cys Asp Ala Leu Ala Ser Lys His Leu Ala Gly Ala Ala Ile Asp
 145 150 155 160
 Val Phe Pro Thr Glu Pro Ala Thr Asn Ser Asp Pro Phe Thr Ser Pro
 165 170 175
 Leu Cys Glu Phe Asp Asn Val Leu Leu Thr Pro His Ile Gly Gly Ser
 180 185 190
 Thr Gln Glu Ala Gln Glu Asn Ile
 195 200

<210> 11
 <211> 236
 <212> PRT
 <213> L. casei

<400> 11
 Ser Asn Val Pro Ala Tyr Ser Pro Ala Ala Ile Ala Glu Phe Ala Leu
 1 5 10 15
 Thr Asp Thr Leu Tyr Leu Leu Arg Asn Met Gly Lys Val Gln Ala Gln
 20 25 30
 Leu Gln Ala Gly Asp Tyr Glu Lys Ala Gly Thr Phe Ile Gly Lys Glu
 35 40 45
 Leu Gly Gln Gln Thr Val Gly Val Met Gly Thr Gly His Ile Gly Gln
 50 55 60
 Val Ala Ile Lys Leu Phe Lys Gly Phe Gly Ala Lys Val Ile Ala Tyr
 65 70 75 80
 Asp Pro Tyr Pro Met Lys Gly Asp His Pro Asp Phe Asp Tyr Val Ser
 85 90 95

Leu	Glu	Asp	Leu	Phe	Lys	Gln	Ser	Asp	Val	Ile	Asp	Leu	His	Val	Pro
			100					105					110		
Gly	Ile	Glu	Gln	Asn	Thr	His	Ile	Ile	Asn	Glu	Ala	Ala	Phe	Asn	Leu
			115				120					125			
Met	Lys	Pro	Gly	Ala	Ile	Val	Ile	Asn	Thr	Ala	Arg	Pro	Asn	Leu	Ile
		130				135					140				
Asp	Thr	Gln	Ala	Met	Leu	Ser	Asn	Leu	Lys	Ser	Gly	Lys	Leu	Ala	Gly
145					150					155					160
Val	Gly	Ile	Asp	Thr	Tyr	Glu	Tyr	Glu	Thr	Glu	Asp	Leu	Leu	Asn	Leu
				165					170					175	
Ala	Lys	His	Gly	Ser	Phe	Lys	Asp	Pro	Leu	Trp	Asp	Glu	Leu	Leu	Gly
			180					185					190		
Met	Pro	Asn	Val	Val	Leu	Ser	Pro	His	Ile	Ala	Tyr	Tyr	Thr	Glu	Thr
		195					200					205			
Ala	Val	His	Asn	Met	Val	Tyr	Phe	Ser	Leu	Gln	His	Leu	Val	Asp	Phe
		210				215					220				
Leu	Thr	Lys	Gly	Glu	Thr	Ser	Thr	Glu	Val	Thr	Gly				
225					230					235					

<210> 12

<211> 192

<212> PRT

<213> Methylotheobacterium pseudomonas sp.

<400> 12

Cys	Asn	Ser	Ile	Ser	Val	Ala	Glu	His	Val	Val	Met	Met	Ile	Leu	Ser
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Leu	Val	Arg	Asn	Tyr	Leu	Pro	Ser	His	Glu	Trp	Ala	Arg	Lys	Gly	Gly
			20					25					30		
Trp	Asn	Ile	Ala	Asp	Cys	Val	Ser	His	Ala	Tyr	Asp	Leu	Glu	Ala	Met
		35				40					45				
His	Val	Gly	Thr	Val	Ala	Ala	Gly	Arg	Ile	Gly	Leu	Ala	Val	Leu	Arg
	50				55					60					
Arg	Leu	Ala	Pro	Phe	Asp	Val	His	Leu	His	Tyr	Thr	Asp	Arg	His	Arg
65				70					75					80	
Leu	Pro	Glu	Ser	Val	Glu	Lys	Glu	Leu	Asn	Leu	Thr	Trp	His	Ala	Thr
			85					90					95		
Arg	Glu	Asp	Met	Tyr	Pro	Val	Cys	Asp	Val	Val	Thr	Leu	Asn	Cys	Pro
			100					105					110		
Leu	His	Pro	Glu	Thr	Glu	His	Met	Ile	Asn	Asp	Glu	Thr	Leu	Lys	Leu
		115					120					125			
Phe	Lys	Arg	Gly	Ala	Tyr	Ile	Val	Asn	Thr	Ala	Arg	Gly	Lys	Leu	Cys
		130				135					140				
Asp	Arg	Asp	Ala	Val	Ala	Arg	Ala	Leu	Glu	Ser	Gly	Arg	Leu	Ala	Gly
145				150						155					160
Tyr	Ala	Gly	Asp	Val	Trp	Phe	Pro	Gln	Pro	Ala	Pro	Lys	Asp	His	Pro
			165					170					175		
Trp	Arg	Thr	Met	Pro	Tyr	Asn	Gly	Met	Thr	Pro	His	Ile	Ser	Gly	Thr
			180					185					190		

<210> 13

<211> 131
 <212> PRT
 <213> Homo sapiens

<400> 13
 Pro Cys Thr Pro Lys Gly Cys Leu Glu Leu Ile Lys Glu Thr Gly Val
 1 5 10 15
 Pro Ile Ala Gly Arg His Ala Val Val Val Gly Arg Ser Lys Ile Val
 20 25 30
 Gly Ala Pro Met His Asp Leu Leu Trp Asn Asn Ala Thr Val Thr
 35 40 45
 Thr Cys His Ser Lys Thr Ala His Leu Asp Glu Glu Val Asn Lys Gly
 50 55 60
 Asp Ile Leu Val Val Ala Thr Gly Gln Pro Glu Met Val Lys Gly Glu
 65 70 75 80
 Trp Ile Lys Pro Gly Ala Ile Val Ile Asp Cys Gly Ile Asn Tyr Lys
 85 90 95
 Val Val Gly Asp Val Ala Tyr Asp Glu Ala Lys Glu Arg Ala Ser Phe
 100 105 110
 Ile Thr Pro Val Pro Gly Gly Val Gly Pro Met Thr Val Ala Met Leu
 115 120 125
 Met Gln Ser
 130

<210> 14
 <211> 170
 <212> PRT
 <213> Rattus sp.

<400> 14
 Lys Phe Asp Asn Leu Tyr Gly Cys Arg Glu Ser Leu Ile Asp Gly Ile
 1 5 10 15
 Lys Arg Ala Thr Asp Val Met Ile Ala Gly Lys Val Ala Val Val Ala
 20 25 30
 Gly Tyr Gly Asp Val Gly Lys Gly Cys Ala Gln Ala Leu Arg Gly Phe
 35 40 45
 Gly Ala Arg Val Ile Ile Thr Glu Ile Asp Pro Ile Asn Ala Leu Gln
 50 55 60
 Ala Ala Met Glu Gly Tyr Glu Val Thr Thr Met Asp Glu Ala Cys Lys
 65 70 75 80
 Glu Gly Asn Ile Phe Val Thr Thr Thr Gly Cys Val Asp Ile Ile Leu
 85 90 95
 Gly Arg His Phe Glu Gln Met Lys Asp Asp Ala Ile Val Cys Asn Ile
 100 105 110
 Gly His Phe Asp Val Glu Ile Asp Val Lys Trp Leu Asn Glu Asn Ala
 115 120 125
 Val Glu Lys Val Asn Ile Lys Pro Gln Val Asp Arg Tyr Leu Leu Lys
 130 135 140
 Asn Gly His Arg Ile Ile Leu Leu Ala Glu Gly Arg Leu Val Asn Leu
 145 150 155 160
 Gly Cys Ala Met Gly His Pro Ser Phe Val
 165 170

<210> 15
 <211> 179
 <212> PRT
 <213> Phormidium lapideum

<400> 15
 Thr Pro Met Ser Ile Ile Ala Gly Arg Leu Ser Val Gln Phe Gly Ala
 1 5 10 15
 Arg Phe Leu Glu Arg Gln Gln Gly Gly Arg Gly Val Leu Leu Gly Gly
 20 25 30
 Val Pro Gly Val Lys Pro Gly Lys Val Val Ile Leu Gly Gly Val
 35 40 45
 Val Gly Thr Glu Ala Ala Lys Met Ala Val Gly Leu Gly Ala Gln Val
 50 55 60
 Gln Ile Phe Asp Ile Asn Val Glu Arg Leu Ser Tyr Leu Glu Thr Leu
 65 70 75 80
 Phe Gly Ser Arg Val Glu Leu Leu Tyr Ser Asn Ser Ala Glu Ile Glu
 85 90 95
 Thr Ala Val Ala Glu Ala Asp Leu Leu Ile Gly Ala Val Leu Val Pro
 100 105 110
 Gly Arg Arg Ala Pro Ile Leu Val Pro Ala Ser Leu Val Glu Gln Met
 115 120 125
 Arg Thr Gly Ser Val Ile Val Asp Val Ala Val Asp Gln Gly Gly Cys
 130 135 140
 Val Glu Thr Leu His Pro Thr Ser His Thr Gln Pro Thr Tyr Glu Val
 145 150 155 160
 Phe Gly Val Val His Tyr Gly Val Pro Asn Met Pro Gly Ala Val Pro
 165 170 175
 Trp Thr Ala

<210> 16
 <211> 165
 <212> PRT
 <213> E. coli

<400> 16
 Asn Ile Arg Val Ala Ile Ala Gly Ala Gly Gly Arg Met Gly Arg Gln
 1 5 10 15
 Leu Ile Gln Ala Ala Leu Ala Leu Glu Gly Val Gln Leu Gly Ala Ala
 20 25 30
 Leu Glu Arg Glu Gly Ser Ser Leu Leu Gly Ser Asp Ala Gly Glu Leu
 35 40 45
 Ala Gly Ala Gly Lys Thr Gly Val Thr Val Gln Ser Ser Leu Asp Ala
 50 55 60
 Val Lys Asp Asp Phe Asp Val Phe Ile Asp Phe Thr Arg Pro Glu Gly
 65 70 75 80
 Thr Leu Asn His Leu Ala Phe Cys Arg Gln His Gly Lys Gly Met Val
 85 90 95
 Ile Gly Thr Thr Gly Phe Asp Glu Ala Gly Lys Gln Ala Ile Arg Asp

	100		105		110										
Ala	Ala	Ala	Asp	Ile	Ala	Ile	Val	Phe	Ala	Ala	Asn	Phe	Ser	Val	Gly
	115						120					125			
Ala	Ser	Ser	Arg	Met	Thr	Phe	Ala	Asn	Gly	Ala	Val	Arg	Ser	Ala	Leu
	130					135					140				
Trp	Leu	Ser	Gly	Lys	Glu	Ser	Gly	Leu	Phe	Asp	Met	Arg	Asp	Val	Leu
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<400> 17

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Ser	Glu	Gln	Glu	Ala	Gln	Lys	Lys	Ile	Trp	Phe	Asp	Lys	Tyr	Gly	Leu
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			100					105					110		
Thr	His	Ser	Ala	Pro	Glu	Ser	Ile	Pro	Asp	Thr	Phe	Glu	Asp	Ala	Val
		115					120					125			
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Leu	Phe	Thr	Pro	Asp	Val	Ile	Arg	Ala	Ala	Ser	Ile	Asn	Glu	Arg	Pro
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			165					170						175	
Glu	Glu	Ala	Tyr	Thr	Leu	Thr	Glu	Gly	Arg	Cys	Leu	Phe	Ala	Ser	Gly
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Ile	Leu	Cys	Asn	Thr	Arg	His	Ile	Ser	Asp	Ser	Val	Phe	Leu	Glu	Ala
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Ala	Lys	Ala	Leu	Thr	Ser	Gln	Leu	Thr	Asp	Glu	Glu	Leu	Ala	Gln	Gly
			245						250					255	
Arg	Leu	Tyr	Pro	Pro	Leu	Ala	Asn	Ile	Gln	Glu	Val	Ser	Ile	Asn	Ile
		260					265						270		
Ala	Ile	Lys	Val	Thr	Glu	Tyr	Leu	Tyr	Ala	Asn	Lys	Ala	Phe	Arg	Tyr
		275					280					285			

Pro	Glu	Pro	Glu	Asp	Lys	Ala	Lys	Tyr	Val	Lys	Glu	Arg
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